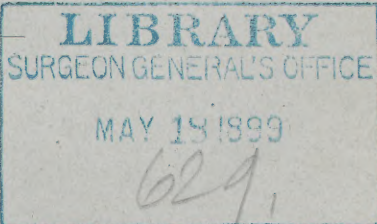


BURRAGE (W.L.) ~~COMPLIMENTS OF~~  
~~W.L. BURRAGE~~

THE IMMEDIATE AND REMOTE RE-  
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SIO-UTERI OPERATIONS.

BY  
W. L. BURRAGE, M.D.,  
OF BOSTON.

FROM  
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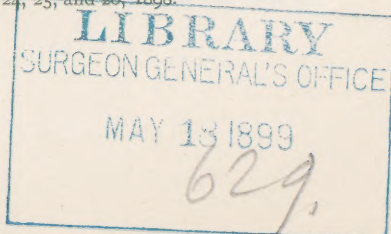
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**THE IMMEDIATE AND REMOTE RESULTS OF  
SEVENTY-ONE ALEXANDER AND SEV-  
ENTY-ONE SUSPENSIO-UTERI  
OPERATIONS.<sup>1</sup>**

BY W. L. BURRAGE, M.D.,  
OF BOSTON.

THE paper here presented is based on 71 Alexander and 71 suspensio-uteri operations performed by the writer during the six years from 1891 to 1897, inclusive, the first Alexander having been done August 7, 1891, and the first suspension August 1, 1893, so that a majority of the Alexanders were performed in the earlier years of this period and a majority of the suspensions in the later years. The facts in this paper are from my private operation-records written by myself on the day of the operation, with very few exceptions, and during the subsequent convalescence and whenever the patient again came under observation. With 3 exceptions, all of the 142 patients were examined by me personally at the time of their discharge, two or three weeks after the operation, and notes made of the existing condition. These notes form the basis of the immediate results here chronicled. For the remote results the patients were examined at least three months after their operations, for the most part by the writer, but in several instances where the patients were at a distance by their attending physi-

<sup>1</sup> Candidate's paper presented for admission to membership in the American Gynecological Society at its Twenty-third Annual Meeting, held at Boston, May 24, 25, and 26, 1898.





cians, who kindly reported the results to me. Sixteen patients it was impossible to trace at all, and 7 were reported as being free from uterine symptoms, or wrote me to that effect. Reliable statistics were obtained from 62 Alexander and 60 suspension cases, 122 out of 142 cases. None of the patients died as a result of the operation. Three, upon whom the Alexander operation was performed, have since died, 2 of pneumonia and the other of unknown causes.

*The Alexander Operation.*—Sixty-four operations. *Technic:* Locate pubic spine by touch. Incision six centimeters long, nearly parallel with Poupart's ligament, the lower end of the incision being at the pubic spine. Dissection of the subcutaneous fat layers until the glistening fibers of the aponeurosis of the external oblique are brought into view. All the structures in the external abdominal ring are seized with tissue-forceps and drawn up. Here it may be said in passing that the author has never failed to find the ligament. A small hook is passed under all the tissues and is then replaced by the operator's finger. The nerve is separated from the ligament and drawn to one side. Traction is made on the ligament, and after it has been pulled out to its uterine enlargement the same procedure is adopted with the ligament on the opposite side, the uterus is anteverted by bimanual touch, and the ligaments are anchored to the pillars of the ring by two ligatures of fine silk to each pillar. Silkworm gut, kangaroo tendon, and chromicised catgut were used in some instances, but fine silk as a general rule. If the ligament is much bruised it is cut off, otherwise it is left in the wound. The wounds are closed with

interrupted sutures of silkworm gut passing through skin and fat, and catching up a few fibers of the aponeurosis of the external oblique so as to leave no dead space. Some of the wounds were closed with a continuous suture of either catgut or silkworm gut passed subcutaneously. The dressings consist of dry powder, aristol, or sterilized nosophen dusted on the wound, and dry gauze stuck to the skin with corrosive collodion to prevent contamination of the wound from the patient's finger or the subsequent shifting of the dressing.

Seven operations by the Edebohls' method. Slightly longer incision. Inguinal canal laid open by dividing the aponeurosis of the external oblique in the direction of Poupart's ligament up to the internal abdominal ring. Isolation of the round ligament in the canal by means of hooks, and separation of the nerve. Drawing out of the round ligament up to its uterine enlargement and stripping back of the peritoneal investment. After the other ligament has been shortened the position of the fundus uteri is verified by the operator's little finger passed through the internal ring. The edge of the internal oblique muscle is stitched to Poupart's ligament by a continuous suture of chromicised catgut, No. 2, the needle passing through the round ligament with each stitch and thus securely anchoring it. The aponeurosis of the external oblique is closed with the same stitch, which is tied with its other end at the upper limit of the wound in the aponeurosis. By this procedure there is only one knot in the entire operation. The ligament is cut off at the external ring. The wounds are closed and the dressings

are applied in the same way as in the other method.

Although the Alexander operation was primarily intended for cases of retroversion without adhesions, its field has been amplified in my hands by performing it in conjunction with posterior colpotomy in cases of moderate adhesions. This was done in nine of my cases with good results. The colpotomy proved especially useful where the uterosacral ligaments were tight. Where the ovaries were prolapsed and free from adhesions the Alexander operation, in certain cases, has restored them to a normal position, but when adherent, or when the ovarian ligaments have been long, it has not done so in a majority of cases even with the aid of colpotomy.

A glance over the tabulated statistics of the 71 Alexander operations, shows that 34 are cases of retroversion free from adhesions, 7 of retroflexion free from adhesions, 28 of retroversion or retroflexion with some adhesions or with tight uterosacral ligaments, and 2 of procidentia. One or both ovaries were noted as being prolapsed in 16 cases. An inguinal hernia existed on one side in two cases, and a radical cure was effected in the course of the Alexander operation in each case. Curetting of the uterine cavity was done in every case. Amputation of the cervix and the ligature operation for hemorrhoids were each done once. Trachelorrhaphy and perineorrhaphy were performed together 7 times, perineorrhaphy alone 6 times, and trachelorrhaphy alone 9 times.

The immediate results of the 71 Alexander operations were good in all but 6, 92 per cent. Of these



6, 1 only was a total failure, the other 5 being classed as fair. The cause of the failure is not plain as the ligaments were of good size, were anchored with silk, and the wounds healed by first intention. One ligament broke off in the course of the operation in five cases. As a result, the uterus was in the first degree of retroversion at the time of the patient's discharge in 3, and later, completely retroverted in all except 1. This patient went through a normal labor one year and five months after the operation, and subsequently the uterus was in good position and well involuted. The first 4 cases, taken together with one case in which there was only one ligament to shorten because of a previous ovariectomy, and in which there was an ultimate failure, would argue against trusting to one ligament to hold the uterus in place. In one or two other cases the ligament broke during the operation and was recovered by opening the entire inguinal canal and fishing for the ligament through the internal ring. In the one Edebohls' operation where the cord gave way at its uterine insertion, the fault was due to using too great force in pulling on a fatty cord in a fleshy patient through an error in not appreciating that the fundus uteri was already well up.

Pregnancy has taken place in 12 cases, 19 per cent., following operation. The pregnancy and labor were both normal in 5 of these. Of the remaining 7, 1 had a tedious labor terminated by forceps, and, following that, three miscarriages. Six years after the operation the uterus was found retroverted. It was noted in this case at the time of her discharge from the hospital after the Alexander operation that

from the one-sided position of the uterus one ligament had probably given way. In another there was prolonged suppuration in the wounds and the silkworm-gut ligatures which had anchored the ligaments came out. Here the uterus was found retroverted in early pregnancy. Another patient miscarried at seven months from overwork. The uterus was subsequently in good position. Another had pain in the left groin while pregnant, and her labor was slightly tedious. The uterus was in good position afterward. Another is now pregnant in the early months, while still another was eight-months' pregnant when last seen and had had no unusual symptoms. Another had a normal pregnancy, but the labor was long and the placenta was adherent requiring manual extraction, which was followed by sepsis. Five weeks after labor the uterus was found retroverted and adherent, a condition not to be wondered at in the light of the sequelæ of the confinement, but two months afterward it was small and in good position. To sum up: Pregnancy and labor were both normal in five cases; pregnancy was noted as being abnormal in the remaining cases three times; labor abnormal three times; pregnancy normal three times, and labor normal once. Abortion resulted from the operation in no case. The uterus was retroverted following labor in 4 cases.

The tables show that out of 62 cases examined the ultimate results were good in 48, 77 per cent., and failures in 14, 23 per cent. The other 9 cases were classed as unknown. It is to be remembered that of the 14 failures, 6 were immediate partial or complete failures also, leaving 8 cases in which the uterus



became retroverted subsequent to the discharge of the patient. Four of these became retroverted, as already stated, after a subsequent labor. It is noticeable also that all of the immediate partial or complete failures were afterward traced and the results appear again in the list of ultimate failures. The large percentage of ultimate failures is to be attributed to lack of skill on the part of the operator, most of the failures being among the earlier cases, and to the fact that the operation was sometimes performed in unsuitable cases.

A left inguinal hernia followed the Alexander operation in two instances. In one the cords were slender and the rings normal in size, while in the other the cords were very large and the rings large. The ligaments were anchored with catgut in both cases. In both the uterus was in good position ultimately. Pain in the scars followed the earlier operations where the nerves were not carefully separated from the cords, but not in the later operations. No bladder symptoms as resulting from the operation have been noted in any of the cases.

*The Suspensio-uteri Operation.*—Technic: For convenience of description the 71 cases may be divided into (1) those in which the uterus was suspended by attaching the fundus uteri to the parietal peritoneum, and (2) those in which suspension was accomplished by sewing the round or ovarian ligaments to the parietal peritoneum.

1. Of this class there were 58 cases, divided into 11 for the posterior face of the fundus, 11 for the top of the fundus, and 36 for the anterior face of the fundus. Permanent ligatures of silk or silkworm gut

passing through muscle and fascia as well as peritoneum and constituting ventral fixation, were employed only seven times. Both ovaries and tubes were removed in two of these and one or both ovaries resected in the others. It is interesting to note here that only one of these patients has since become pregnant, and she was reported by her physician as having had pain during early pregnancy, but later to be entirely free from it. This was a case of extensive suppuration following pelvic abscess, where the adhesions between the fundus and the parietes must have been very dense.

The usual method of operating is as follows: Unless there is much work to do in the pelvis in the way of operating on the ovaries and tubes, the incision is short, six centimeters, in the median line, with its lower end not nearer than three centimeters to the symphysis pubis. The uterus is brought up to the abdominal wound by two fingers of the operator's left hand. A slender, full-curved needle with a round point, and threaded with a carrying thread, is passed through the transversalis fascia and peritoneum at a distance of one centimeter from the right edge of the incision, then through a deep bite of the fundus uteri, and finally through the peritoneum and transversalis fascia on the left edge of the incision. The carrying thread is used to draw through a strand of No. 2 or No. 3 chromicised catgut. Two or three stitches are inserted, that through the top of the fundus being quite superficial in the uterine tissue. Care is observed in not interfering with the uterine ends of the tubes and in not attaching the fundus too close to the pubes. Tying the uterine sutures closes

the peritoneum except for a short space in the upper part of the wound, which is closed with a continuous stitch of fine catgut. The linea alba is dissected out and the bellies of the recti are approximated by two or three interrupted stitches of No. 2 chromicised catgut, each stitch catching up the underlying peritoneum so as to leave no dead space. The fascia is closed by a continuous suture of the same material and the skin by a subcutaneous right-angled silk-worm-gut suture. Dressings of dry powder on the line of the wound and dry sterile gauze stuck to the surrounding skin by corrosive collodion.

2. By the round or ovarian ligaments, 13 cases, 8 of the former and 5 of the latter. The incision into the peritoneal cavity is the same as in suspension of the fundus. If by the round ligaments, the ligament on one side is pierced at a point three centimeters from the uterus by a round-pointed, full-curved needle carrying fine silk. The needle is then made to pierce the peritoneum and overlying transversalis fascia at a point two centimeters outside of the line of the abdominal incision and five centimeters from the symphysis pubis. Another stitch is placed on this side and two similar stitches on the opposite ligament and all are tied. In cases where the ovarian ligaments are very long, allowing complete prolapse of the ovaries, the same procedure is carried out with the ovarian ligaments as with the round ligaments, two fine silk stitches to each ligament being used. The abdominal wound is closed and dressed as in the other form of suspension.

Glancing over the tables it appears that in 40 cases suspension was done for retroversion, retro-



flexion, or retroposition accompanied by more or less extensive adhesions; in 19 cases for retroversion, retroflexion, or retroposition without adhesions; in 6 cases for prolapse; and in 6 cases to prevent ovarian prolapse, or, after the removal of severe grades of inflammatory affections of the ovaries and tubes, to prevent retroversion of the uterus into the raw surface left by their removal. Both tubes and ovaries were removed in 13 cases, one ovary in 34 cases, the ovaries and tubes were resected in 17 cases, and nothing was done to the ovaries or tubes in 15 cases. Every effort was made to preserve some healthy ovarian tissue and, considering the severity of many of the cases, the number in which both ovaries and tubes were removed is a small one.

The immediate results were good in every one of the 71 patients except that 5 had mural abscesses. As far as the uterus was concerned it was suspended in good position at the time of the patient's discharge. As regards symptoms, the pain immediately following was inconsiderable in almost all. A few patients complained of a drawing feeling in the uterine region on coughing and sneezing during the first days after being up and about. In no case was there interference with micturition.

Subsequent pregnancy has resulted in 7 cases, or 12 per cent. Of these, 5 women have had normal pregnancies and normal labors, and one of them is now five-months' pregnant for the second time, and is not having pain. The remaining 2 of the 7 are now pregnant. One, four months along, is having no special symptoms to mark this pregnancy from her former ones; the other, six months along, has already been

referred to as having had pains but as now free from them.

In the 5 cases in which normal pregnancy and labor has taken place the uterus was found in good position two months after labor in one, a case of suspension by the anterior face of the fundus, and in another, a case of suspension by the round ligaments, the uterus was found retroverted two years later. One of the remaining three is now pregnant again, and of the other two it has been impossible to obtain the facts because the patients live at a distance.

When we take into account the fact that a majority of the suspension operations have been done during the past year and a half, it is not surprising that fewer of these women have become pregnant than has been the case with those upon whom the Alexander operation was performed, to say nothing of the suspension operation having been accompanied by the removal of one or both ovaries in 66 per cent. of the cases as against the Alexander, in which, with one exception, the ovaries and tubes were not operated upon.

Of the 60 patients examined as to ultimate results, the results were good in 56 and bad in 4. Four of the 12 patients counted as unknown, wrote that they were relieved of their symptoms. Not including these we have 93 per cent. of good results and 7 per cent. of failures. Only one of the failures followed pregnancy, and that one was a case of suspension by means of the round ligaments. In another, also a suspension by means of the round ligaments, the ligaments gave way ultimately. The

other two suspensions were by the anterior and top of the fundus. In one there was suppuration in the wound, while in the other, the union was by first intention, but there was a question as to the patient having had an abortion not long after the operation. There was a small hernia in the cicatrix in one case two years after the operation. There had been suppuration in this wound while the patient was in the hospital. In no case were there symptoms pointing to strangulation of a loop or loops of intestine due to the suspending ligaments or bands.

In contrasting the Alexander with the suspension operation as to immediate and remote results one is impressed at the outset with the fallacy of statistics. Knowing as we do that many of the Alexander operations have been performed on patients upon whom, in the light of a larger experience, we should elect to do the suspension operation, and also that the Alexander operations on my list having been begun so much before the suspensions that there has been with the former a longer period of time in which to allow of pregnancy to occur and of late results to be gathered, we are prepared to have the Alexander operations make a poorer showing. The immediate results of the Alexander operations were 92 per cent. good, as against 100 per cent. good for the suspensions. The remote results of the Alexander operations were 77 per cent. good, as against 93 per cent. good for the suspensions. Hernia followed the Alexander operation in 3 per cent., and the suspensio uteri in 1.7 per cent. Twenty-five per cent. of the subjects upon whom the Alexander operation was done who became pregnant



had tedious labors. No tedious labors after the suspensio-uteri operation have been noted. One of each class of patients had excessive pains during the early months of a subsequent pregnancy. One-third of the Alexander subjects had the uterus retroverted after labor. In the suspension cases the statistics as to this fact are defective. Only one patient was known to have had retroversion following labor.

Pains in the scars have been noted after certain of the earlier Alexander operations, and rarely these pains have persisted a considerable length of time. These may be contrasted with the drawing sensation noted after some of the suspension operations, but the drawing sensation has never been of more than temporary duration. After neither operation was there interference with micturition, and neither operation was the cause of abortion or miscarriage.

General conclusions: (1) The Alexander operation is preferable to the suspensio-uteri operation because it seeks to support the uterus by its natural ligaments. (2) The Alexander operation is indicated in retroversion, retroflexion, and retroposition without ovarian disease. (3) In retroposition with tight uterosacral ligaments posterior colpotomy for the purpose of dividing the tight ligaments may be performed with advantage, together with the Alexander operation. (4) In ovarian prolapse, especially if the ovarian ligaments are long, the Alexander operation cannot be depended on to raise the ovaries into a normal position. (5) One round ligament is not sufficient to maintain the uterus in place. (6) The Edebohls' operation, although requiring a longer time for its performance than the operation at

the external ring, is the preferable operation because by it the round ligament, being uncovered in the entire length of the inguinal canal is less liable to be broken; also, because this method does away with the need of anteverting the uterus bimanually in the course of the operation; and finally, because of the secure manner in which the ligament is anchored and the inguinal canal closed, making subsequent hernia impossible. (7) Although the Alexander operation leaves two scars on the abdomen, they are so situated as to be covered by the pubic hair and are subsequently less of a disfigurement than is one scar in the median line. (8) The suspensio-uteri operation is indicated in retroversion, retroflexion, and retroposition with ovarian or tubal disease, whether inflammatory affections or prolapse. (9) The best method of performing the suspension is by means of absorbable ligatures passed through the anterior and upper portions of the fundus uteri and through the parietal peritoneum and transversalis fascia only. Thus an elastic band is created between the parietes and the uterus which maintains the uterus in place and does not cause interference with the enlargement of the anterior fundus during subsequent pregnancy. (10) Suspensio uteri leaves but one weak spot in the abdominal parietes predisposing to hernia, instead of two, as in the Alexander operation. (11) In the great majority of cases, neither operation is the cause of complications in subsequent pregnancy. Whatever complications do occur are not of a serious nature. (12) In all cases of doubtful diagnosis in which the condition of the ovaries and tubes cannot be determined accurately

the suspensio-uteri operation is to be preferred to the Alexander operation.







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